2) $A(\alpha) = \int_1^{\alpha} f(t)\,dt$

$A(x) = F(\alpha) - \ln 2$

$\lim_{\alpha \to +\infty} \frac{A(\alpha)}{\alpha} =$

$\lim_{\alpha \to +\infty} \left(\frac{F(\alpha)}{\alpha}\right) - \frac{\ln 2}{\alpha} = +\infty$ ($\frac{F(\alpha)}{\alpha} \to +\infty$)

D'après 4)

$$\frac{\alpha^2-\alpha}{2\ln \alpha} \leq F(\alpha) \leq \frac{\alpha^2-\alpha}{\ln \alpha}$$

$$\frac{1-\frac{1}{\alpha}}{2\ln \alpha} \leq \frac{F(\alpha)}{\alpha^2} \leq \frac{1-\frac{1}{\alpha}}{\ln \alpha}$$

$$\lim_{\alpha \to +\infty} \frac{1-\frac{1}{\alpha}}{\ln \alpha} = 0$$

D'où :

$$\lim_{\alpha \to +\infty} \frac{F(\alpha)}{\alpha} = 0$$

$$\Rightarrow \lim_{\alpha \to +\infty} \frac{A(\alpha)}{\alpha^2} = 0$$

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